Book Review

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Genetics and Public Health in the 20th Century. By Muin J. Khoury, Wylie Burke, and Elizabeth J. Thomson. New York: Oxford University Press, 2001. Pp. 639. $65.00

For several years now, there has been a major effort from these authors and others to identify and formally conceptualize the field that is called "public health genetics." This field has been difficult to reconcile because of the notion that genetics involves only the individual and his or her immediate family, whereas public health is applicable to populations, not individuals. Typically, we do not use public health words like "intervention," "prevention," and "behavior modification" in genetics. Nor does genetics have a particularly high cost-benefit ratio like that typical of many public health programs. We now have a book that delineates the fledgling field of public health genetics and demonstrates how the field can readily engage individuals from both disciplines. The book, *Genetics and Public Health in the 20th Century,* authored by Muin J. Khoury, Wylie Burke, and Elizabeth J. Thomson, covers all aspects of public health, from definitions, birth defects, consent, and legal issues to hemochromatosis and newborn screening. The book has 31 chapters and makes an excellent reference handbook for those interested or actively involved in the process of incorporating genetics into the public health arena. The book reads well because the individual chapters are relatively short, and each manages to highlight particularly relevant issues on each topic.

The book is comprised of six parts. The first, "Genetics and Public Health: An Overview" comprises five chapters that provide an overview of public health. This section includes a framework for integrating genetics into public health (chap. 1), a historical perspective (chap. 2), opportunities for disease prevention (chap. 3), models for policy development (chap. 4), and a closing chapter on the multidisciplinary nature of public health genetics (chap. 5).

The second part of the book, "Public Health Assessment" is comprised of six chapters with topics in epidemiology (chap. 6), birth defects (chap. 7), hemophilia (chap. 8), predisposition to cancer (chap. 9), susceptibility to infectious disease (chap. 10), and assessment of public health in an occupational setting (chap. 11). Part 3, "Evaluation of Genetic Testing, " contains two chapters, on the quality of genetic testing (chap. 12) and newborn screening quality assurance (chap. 13). Part 4, "Developing, Implementing, and Evaluating Population Interventions," has 11 chapters. This section is of utmost importance in the field because, as in all public health fields, milestones and successes rely on the ability to detect where behavior-change strategies and intervention tactics will improve the health of the population being served. The first chapter in this section describes various types of needs assessments for state-based genetics services (chap. 14). This is followed by a chapter that discusses challenges to the field and nicely outlines factors practicing geneticists need to keep in mind, like access and ethnocultural sensitivity in the United States (chap. 15). This is followed by chapters on genetics models in the Netherlands (chap. 16) and in developing countries (chap. 17). The next two chapters deal with genetics and prevention effectiveness models (chap. 18) and the role, impact, and outcomes of genetic counseling in public health (chap. 19). The remaining chapters in part 4 describe newborn screening for phenylketonuria (chap. 20), cystic fibrosis (chap. 21), and sickle cell disease (chap. 22); each one discusses the lessons, successes, and caveats associated with these screening programs. Rounding out part 4 are chapters on the detection and prevention of hemochromatosis (chap. 23) and atherosclerosis (chap. 24).

The three chapters in part 5, "Genetics and Public Health: Ethical, Legal, and Social Issues," discuss the roles of federal and state governments in genetics and public health practice (chap. 25), informed consent (chap. 26), and social risks and ethics associated with data handling and collection, as well as surveillance (chap. 27). The book finishes off with part 6, "Communication, Education, and Information Dissemination." The four chapters of this most important section describe communication practices, with emphasis on engaging the public in the delivery and acceptance of genetics information (chap. 28) and training options in public health genetics (chap. 29). The last two chapters discuss consumer perspectives, using poignant vignettes to illustrate consumer concerns (chap. 30), and the history of and a primer on the use of the Internet to dispense and retrieve genetics information (chap. 31), including two pages of relevant URLs.

As I read through it, I felt the book would be a useful guide for those, like myself, who have the task of assembling lectures in genetics with public health topics for Master's of Public Health degree candidates. The book provides substantiative examples of how genetics really does affect their chosen field of study. In closing, for those of us who have been involved in any way in this "new" field by teaching, working, or practicing it, we have Drs. Khoury and Burke and Ms. Thomson to thank for formalizing it. This compendium of chapters is organized in a logical manner and relays useful information regarding many aspects of the placement and the utility of genetics public health settings. I would expect another edition of this book in a few years, larger in volume, to describe the latest developments in this field, hopefully laced with additional successful examples of public health genetics in action.

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